

FIG. 1(a)

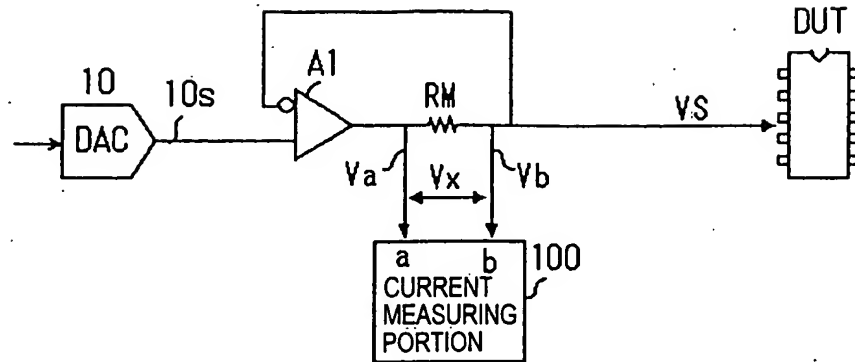


FIG. 1(b)

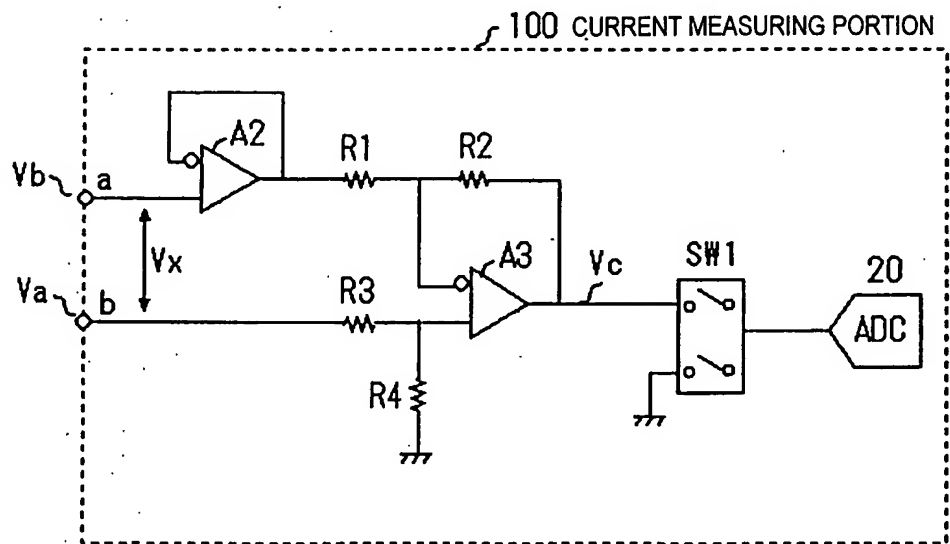


FIG. 1(c)

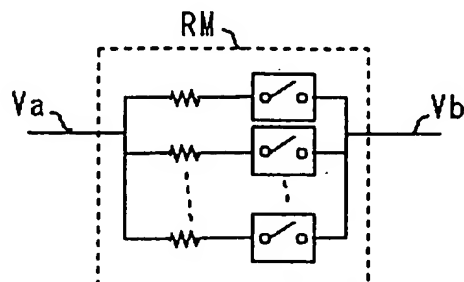


FIG. 2(a)

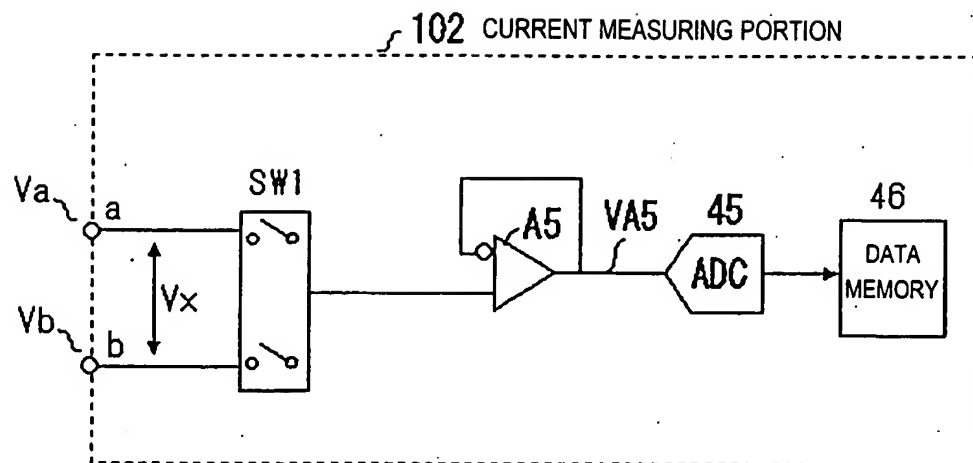


FIG. 2(b)

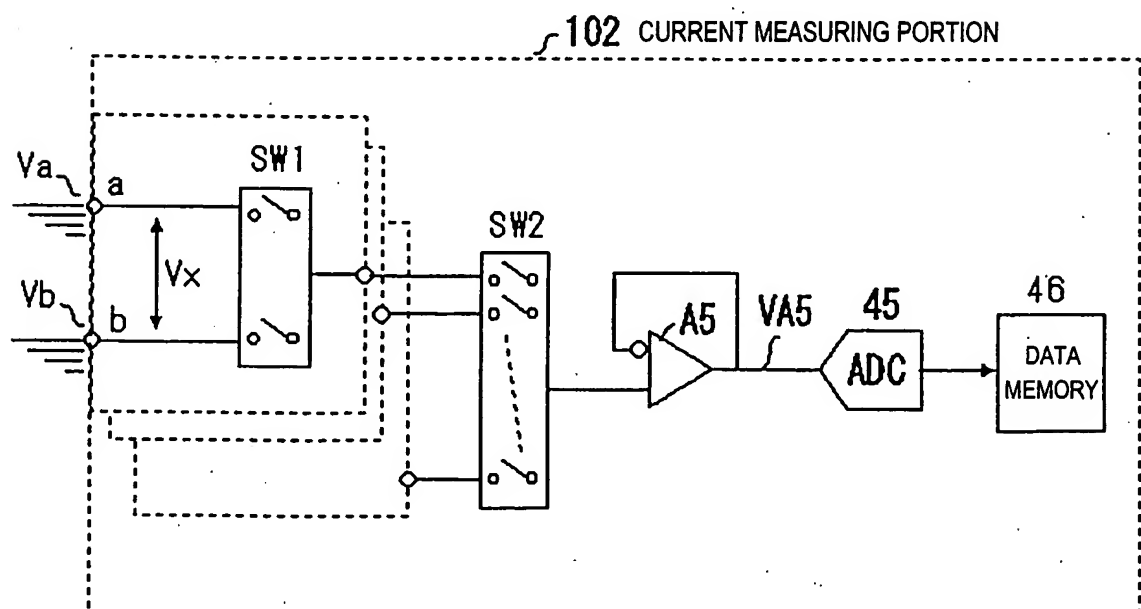


FIG. 3(a)

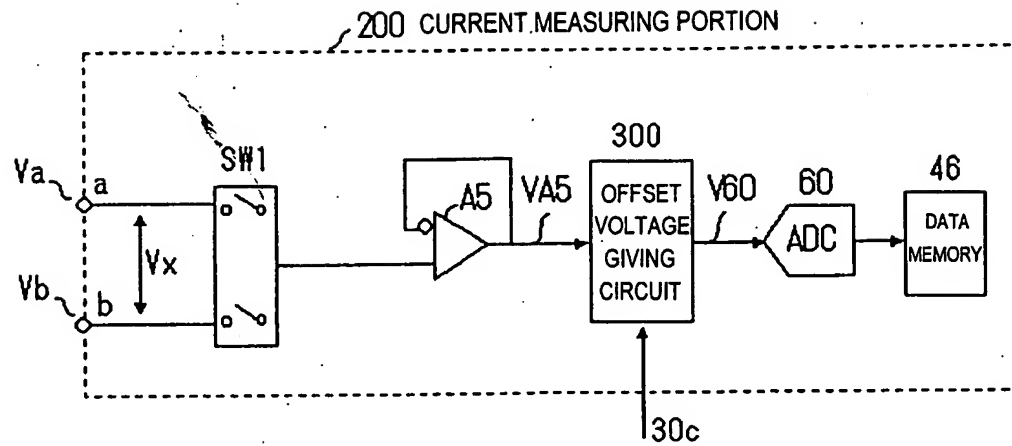


FIG. 3(b)

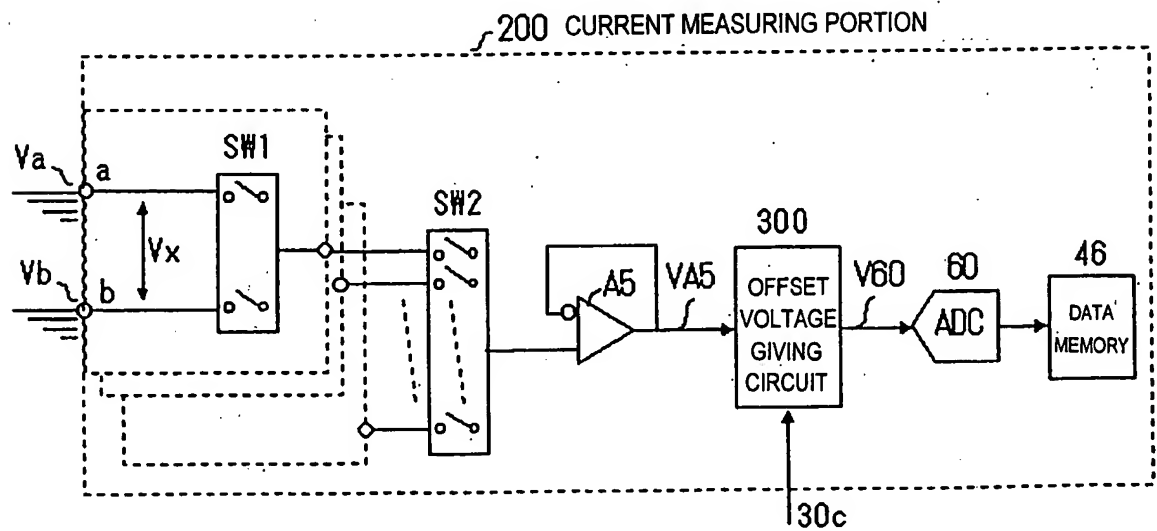


FIG. 4(a)

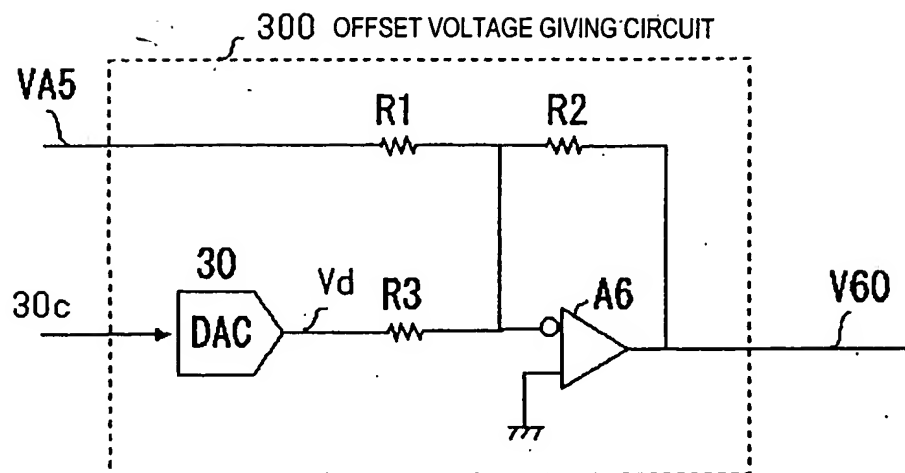
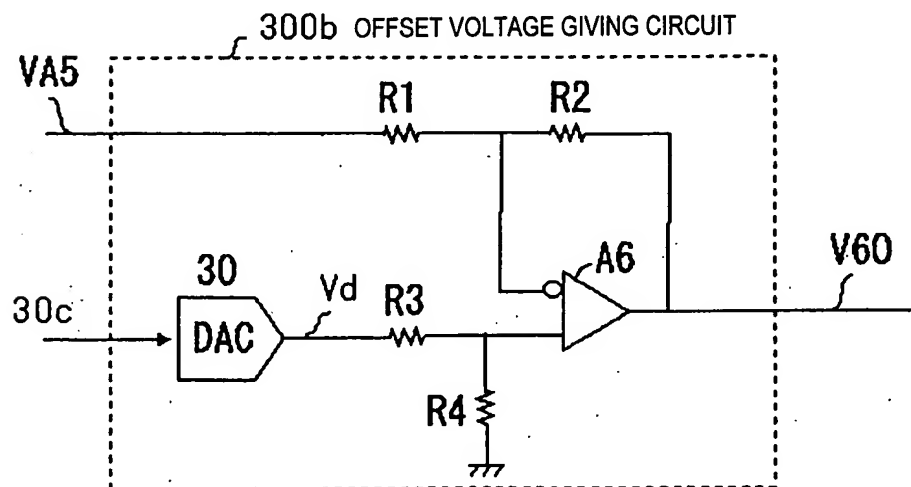


FIG. 4(b)



200b CURRENT MEASURING PORTION

Diagram illustrating the current measuring portion 200b. The circuit includes a switch SW1, an amplifier A5, an offset voltage giving circuit 300c, an ADC 60, and a data memory 46. The input terminals a and b are connected to voltage sources  $V_a$  and  $V_b$  respectively. The voltage difference  $V_x$  is measured across the switch SW1. The output of SW1 is connected to the non-inverting input of amplifier A5. The feedback path of A5 is connected to the output terminal c, which is also connected to the input terminal 10s. The output of A5 is connected to the input of the offset voltage giving circuit 300c. The output of 300c is connected to the input of the ADC 60, which outputs to the data memory 46. The output of the ADC 60 is labeled V60. The input terminal 30c is also connected to the offset voltage giving circuit 300c.

200b CURRENT MEASURING PORTION

Diagram illustrating the current measuring portion (200b) of the system. The circuit includes three switches (SW1, SW2, SW3) and an amplifier (A5). The input signals are  $V_a$ ,  $V_b$ , and  $10s$ . The output of the amplifier is  $VA5$ . The output of the offset voltage giving circuit is  $V60$ . The output of the ADC is  $46$  DATA MEMORY.

FIG. 6(a)

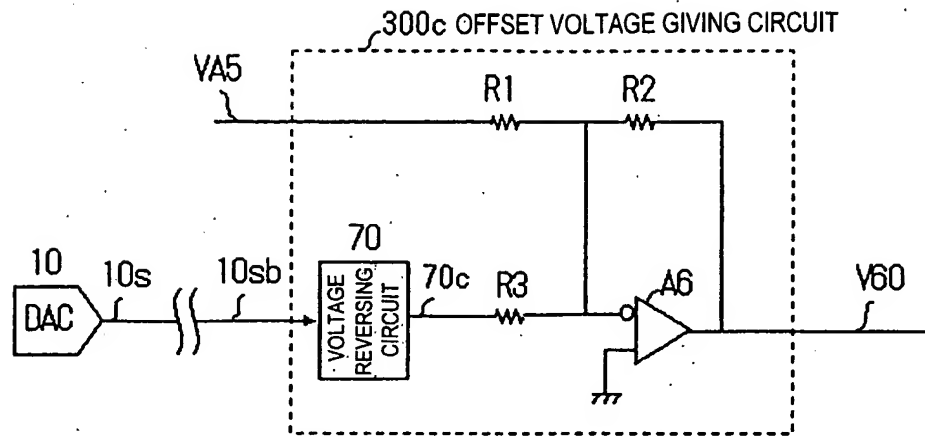


FIG. 6(b)

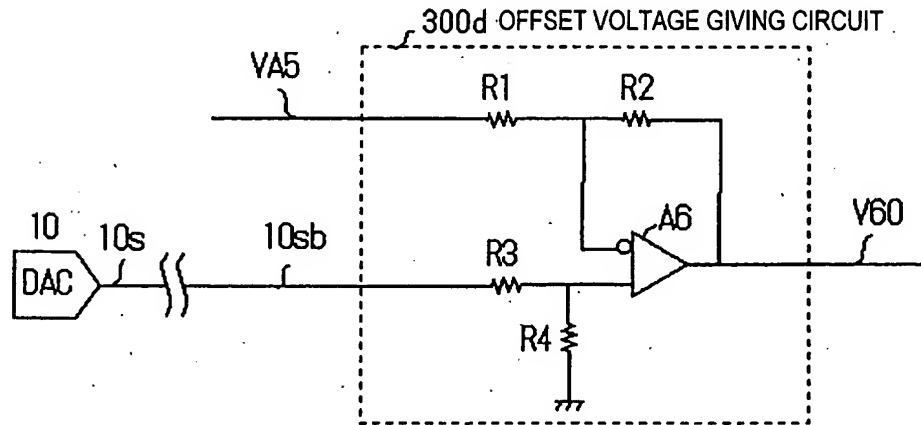
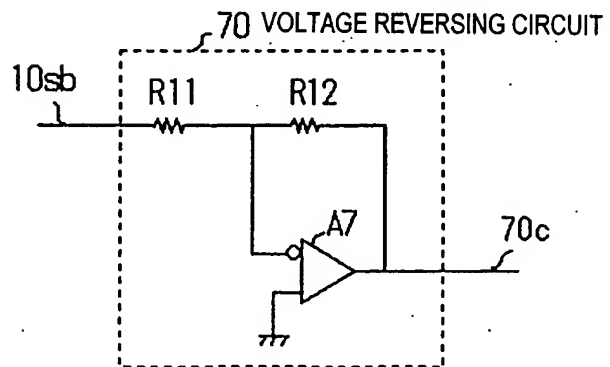


FIG. 6(c)



200b CURRENT MEASURING PORTION

The diagram shows a switch SW1 connected to terminals a and b. A voltage  $V_x$  is applied across the switch. The output of the switch is connected to the non-inverting input of an operational amplifier A5. The output of A5 is  $V_{A5}$ . This output  $V_{A5}$  and a reference voltage  $10sb$  are inputs to a block labeled 300e, which is an OFFSET VOLTAGE GIVING CIRCUIT. This block also receives a signal  $30c$ . The output of block 300e is  $V_{60}$ , which is then processed by a block labeled 60, an ADC (Analog-to-Digital Converter). The output of the ADC is sent to a block labeled 46, which is the DATA MEMORY.

200b CURRENT MEASURING PORTION

The diagram shows a current measuring circuit. It includes input terminals  $a$ ,  $b$ , and  $c$ . Terminals  $a$  and  $b$  are connected to a switch  $SW1$ , which is connected to a switch  $SW2$ . Terminals  $b$  and  $c$  are connected to a switch  $SW3$ . The output of  $SW2$  is connected to an amplifier  $A5$ , which outputs  $VA5$ . The output of  $SW3$  is connected to an offset voltage giving circuit  $300e$ . The output of  $A5$  ( $VA5$ ) is also connected to the offset voltage giving circuit  $300e$ . The output of the offset voltage giving circuit  $300e$  is  $V60$ , which is connected to an ADC  $60$ . The output of the ADC  $60$  is connected to a data memory  $46$ .

FIG. 8(a)

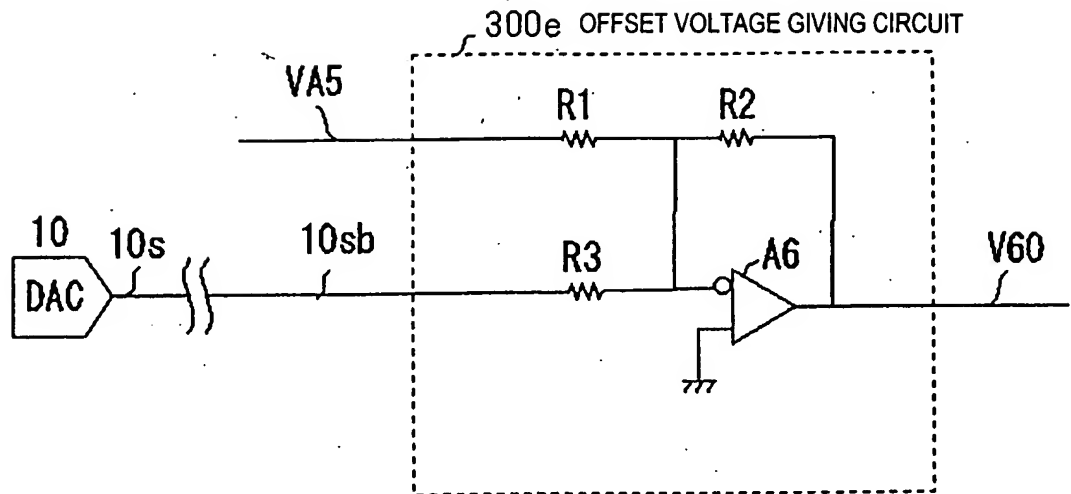


FIG. 8(b)

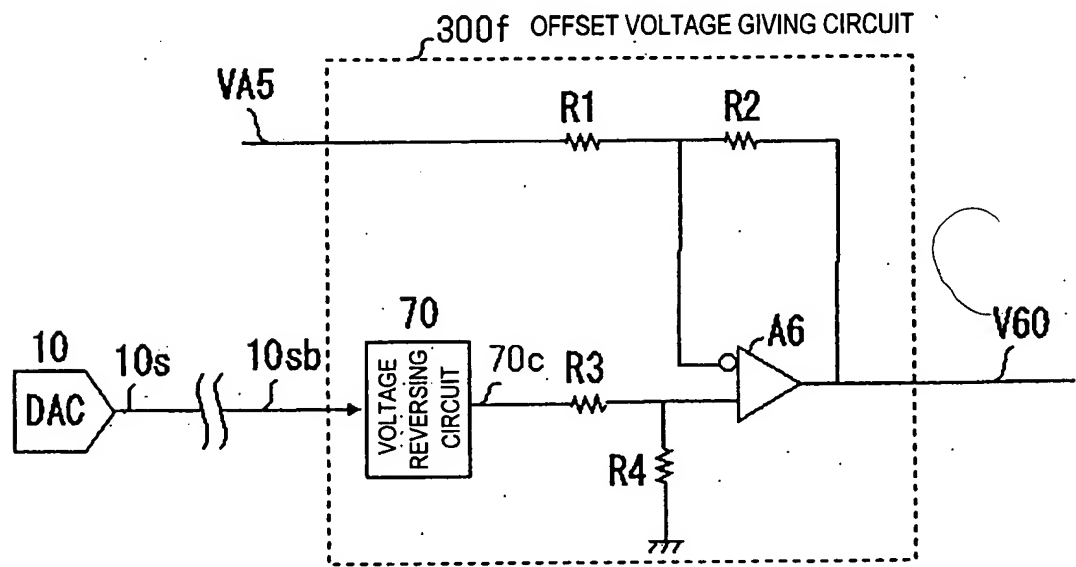


FIG. 9

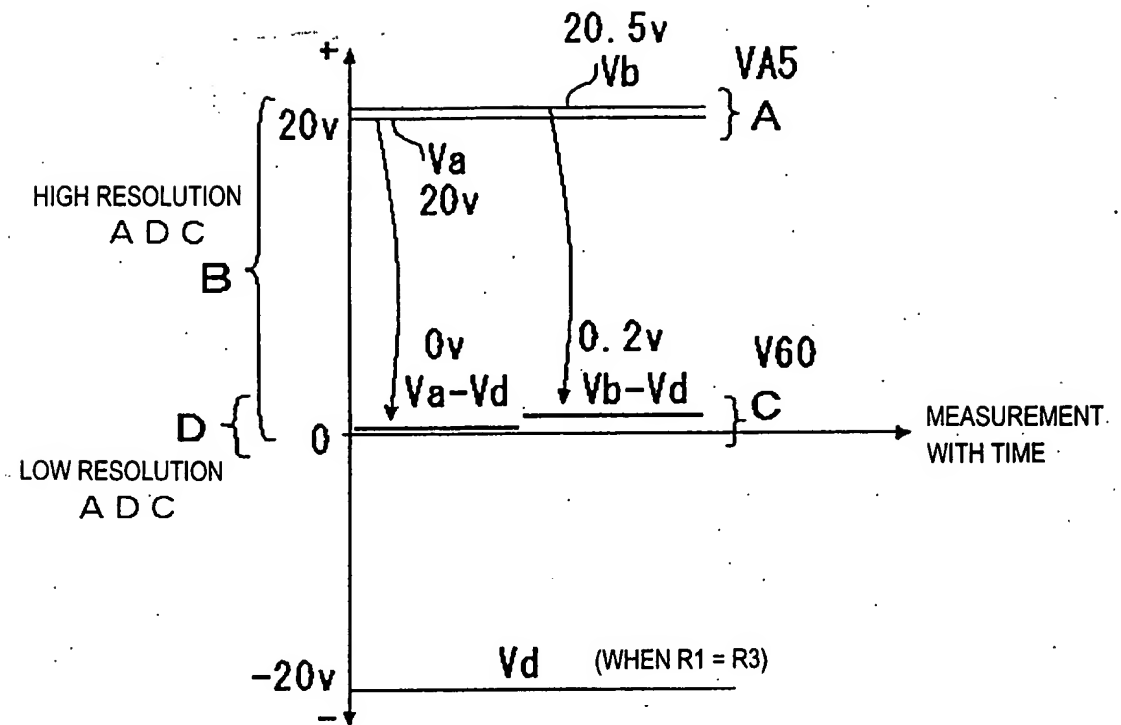


FIG. 10

RESISTANCE  
VALUE DEVIATION (%)

